THE FARMER OF CENTURY'S END

When the United States reaches the full measure of its growth as a nation, it will depend for its life upon the farm and the farmer. The farm is the great laboratory where sun, rain, soil, seed and labor are compounded in the proper proportions to make the food which is necessary to life and the raiment which is necessary to civilization. In the remaining nine decades of the century the farmer will progress more rapidly than any other representative of American life. The achievements of the American farmer have already revolutionized the life of the human race, and he is but upon the threshold of his career. When "Adam delved and Eve span" they used practically the same tools and methods which are still employed by the greater number of the farmers of the world. Artificial irrigation came with Egyptian civilization, and artificial fertilization was discovered ages ago. But for four thousand years the art of agriculture, most important of all arts, was at a standstill.

Then came the American farmer. He owned his own land, his European forebears were peasant tenants. He owned as much land as a baron in Europe. He had to till it all with his own labor and that of his sons. This was the necessity which was the mother of the inventions of labor-saving farm machinery. The American farm machinery agent has gone into every country of the world and has carried revolution with him. To the triumphs in this field, the American farmer is adding the victories of science over ignorance. His future is big with progress.

The United States has a total area of about two billion acres. If one billion be set aside for cities, towns, mines, factories and other non-farming land, there will remain a balance of errors a[illegible]0,000 acres. This is almost three times as much land as the farmer of today uses in growing the food stuff for the people of the United States and many of those of Europe. By extension of present methods of farming to all this available acreage, the United States in the year 2000 will be able to grow all the foodstuff necessary for its 385,000,000 people. But the present spirit of progress is not content with merely extending present methods to a greater acreage. The American farmer is determined to make "two blades of gra[illegible] where one grew before," to make one blade of grass grow where none grows now.

Secretary of Agriculture Wilson and that Wizard of the Soil, Luther Burbank, agree that the progress made by the American farmer in the past forty years is as nothing to what will be done in the years to come. Toward the end of this century the farmer will be the best educated men in America. He will be a chemist with knowledge to enable him to so handle his soils, his fertilizers and his food stuffs as to make them yield the maximum of profit. He will be a botanist with knowledge to enable him to take advantage of the laws of heredity to breed disease-resisting and forest-resisting plants. He will keep pace with every movement of the scientific world which can be turned to his advantage. He will be able greatly to increase the quantity and quality of his wheat and corn, vegetables and fruit, cotton and wool, without having to add a single acre to his field.

But suppose this forward movement is slower than now seems probable; suppose the average farmer of ninety years hence does only as well as the best farmers of today. Even that would mean the increase of the present yield of corn from three billion to seven billion bushels a year, on the present acreage. The average wheat land in this country now yields fifteen bushels per acre. Yet there are today many farmers who are producing forty-five bushels an acre on land that forty years ago was considered rich when it gave an average of fifteen bushels.

Leaving aside the wonderful improvement in the heredity of the plant-life stock which is helping the farmer every day, the development of the science of soil chemistry is certain to add to the power of the farmer's arm. Growing crops need certain chemical foods just as much as human beings do. Our chemical diet is taken as compounded into bread and meat. The bill of fare for the plants is more candid and there must be nitrogen, potash and phosporus. The needs of different soils and of various plants differ just as the requirements of animals differ. The advanced farmer of today, aided and abetted by "Uncle Jimmy" Wilson's bright young men, is studying the needs of his soil and the appetite of his crops.

Commercial fertilizers will supply the demands of the plants for suitable food. The right kind of fertilizer will be applied, and the result will be uniformly helpful. The cost of fertilizers will be decreased. The tobacco grower must needs give his plants potash. Today the potash comes from German mines and costs seven cents a pound. A new way has been found to obtain a supply from our granite mountains by the simple process of grinding the rocks to a powder to be sold at one and one-half cents a pound. Granite-grown tobacco is a commercial success in Virginia fields today as it was a scientific success in the Department of Agriculture experiment stations two years ago. Nitrogen is everywhere present in the air, but until lately it was necessary to employ nitrate of soda as a means of getting it into the soil if there wasn't time to devote a year to growing clover to be plowed under. The nitrate came from South America and was expensive. Now the waters of Niagara move the wheels of the machinery which captures the nitrogen from the air and imprisons it in cotton sacks to be sent out to the farmer who needs it.

The ninety years are certain to reveal other great economies, of which the average farmer of today does not dream. There are probably 25,000,000 horses and mules in this country for which there will be no need in the good year 2000. The cheaper and stronger machine will drive the horse and the mule from the fields. This movement is already beginning. The millions of animals whose usefulness will have ceased before 2000 now consume each year the products of 75,000,000 acres of land. If devoted to potatoes, this land would yield three times the present total world crop. Under the most advanced of modern conditions these acres could be made to support fifty million cows—enough to give a quart of milk a day to every one of the 385,000,000 people we will have when America is grown.

By the elimination of the horse and the utilization of the swamp lands, the farming acreage of the country can be doubled without touching the forests or other idle lands of the country. If but one-half of the land be counted as available for farms, ninety years hence there will be five acres for every two persons in the country, something more than five times what the Chinese have now.

There are indications that the demand upon the farms will change in character. While the American people are not likely to become strict vegetarians within the space of ninety years, they probably will eat much less meat in proportion to population than they now consume. Medical science and economy will unite to bring about changed conditions on this line. It has been demonstrated that for every bit of animal food eaten there is a vegetable counterpart. Vegetarian races have a capacity for endurance which equals, if it does not surpass, that of the meat eaters. The economist will urge that the "lost motion" expended in growing cattle for food be conserved.

We eat porterhouse steaks at twenty-five cents a pound when we might buy beans at four cents a pound, and there is more nutrition in the pound of beans than in the pound of beef. It requires four years to grow a single good beef steer. Under the most favorable conditions it requires the products of six acres of land for one summer to make him ready for the block. When prepared for the table his flesh will furnish a single meal for about 1500 persons. The same six acres of ground would have grown enough beans to feed 45,000 people one meal. And the bean-eaters would have derived more strength and nourishment from their food than the beef eaters.

The mathematical theories of the economist are never realized in actual life, and never will be, but there is no doubt that the American people in the coming ninety years will learn to save much that now goes to waste. The housewives of the American farm throw away more cooked food each year than is consumed by their sisters of Russia. Who has not sat at the board of a farmer upon which was heaped enough food for a company of soldiers? Such wanton waste as that will be stopped.

Another great saving that is coming will be brought about by better knowledge of the science of cooking. The farmer's wife of the latter end of the century will prepare her meals on an electric range—wood is too valuable to burn—and she will prepare only enough for the needs of her family. The food will be better prepared than it is nowadays in the average home, and its wholesomeness will make more of it available for the uses of the body. A little well-cooked food is better than much poorly-cooked food. The girls of the next fin-de-siecle period will be taught to cook scientifically, and they will be taught how not to waste.

Long before the year 2000 rolls around the farmer will have reached a position of social and economic dignity which will have stopped the eager race from the farm to the city which is now the course of so many thousands of young men. In that day the colleges and universities will devote more attention to training the essential agriculturist than to turning out the nonessential lawyer. With a good education, with the world brought to his door-yard through the agency of electricity, with his command of the financial situation through his cooperation with his fellows—the farmer of the year 2000 will be the foremost man in our fullgrown Republic.

GOVERNMENT AND POLITICS IN 2000

As a factor in world politics, the United States is ten years old this summer. Not until after the Spanish-American War did Europe look upon the American nation as fully entitled to a seat at the council table of the powers. Until that time the Americans themselves had been proud of their Western isolation, and contented themselves with casting a protecting wing over the other American republics. In those ten years the United States has been prominent in world diplomacy. It has participated in international confabs where many Americans thought it had no business. It has prevented the partition of China by the Europeans and the Japanese. It ended the war between Russia and Japan. It cut a Gordian knot of Latin-American politics to facilitate cutting a ditch across the canal. It is now making a naval demonstration in force so that its international political views will receive the respectful attention usually accorded to him who speaks softly and carries a big stick.

Whether it was "manifest destiny" or a deliberate breaking away from the advice of Washington and the other immortals, is now only an academic controversy. The fact is, the United States is in world politics, is in to stay in, and is rapidly gaining a predominant position. So much for ten years. Another ninety, and the American people will have been in world politics for a century. Long before that time the United States will have become the supreme power in the world because of its great wealth, its great population and its great resources. It will maintain that position by virtue of its captainey of the Pan-American Union—the confederation of republics which is already wielding an enormous influence and which must grow in strength and power with the development of the great Latin countries to the South.

Political union of the Americas is improbable on account of the bar of diverse tongues. Political and commercial cooperation is already promised. Railroads direct from Argentina and Chile to New York and Puget Sound, a merchant marine and the Panama Canal will cement the nations of the Western world into one potential whole. The palace being built in Washington for the Pan-American Bureau may have more of the promise of American glory in its future than Andrew Carnegie, who gave most of the million to build it, and John Barrett, who is bossing the job, have dreamed of.

In the Pacific Ocean the United States will hold Hawaii, its detached islands and the Philippines. It will have the major portion of the enormous Chinese and Siberian trade. It will be in that day what England so long has been, and Columbia will rule the waves—vice Britannia, resigned.

What the future will bring forth in domestic party politics no man may dare predict. But the certain influences of growth and development will materially affect the present political and governmental organizations. The forty-six stars on the flag will have been multiplied by the addition of new States and the division of old ones. Arizona, New Mexico, Southern Alaska and Hawaii will have gained statehood long before the year 2000. Porto Rico, perhaps in union with other West Indian islands, may also add a star to the constellation of the flag.

Texas is entitled, by the terms of the Act of Admission, to divide its great empire into five sovereign States. The rapid growth of the Lone Star State will make its local administration more and more difficult as the years go by, and it will split up. The Texan patriotism will keep alive the old memories of the Lone Star, and the States of Texas, Houston, Austin, Crockett and Alamo will form a great group as compact in spirit as that of New England, formed by the six States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.

New York City will have grown enormously and will have become the greatest city on earth. The lack of sympathy between the city and "upstate" will so increase that a separation will be deemed necessary, and the new state of Manhattan will include the great urban population of the southern end of New York state, Long Island and the northern part of New Jersey. Already the people of the Inland Empire in the northwest are clamoring for a division of territory by three states which will enable them to add to the roster of the states the name of Lincoln.

Southern California and Northern California are divided by natural boundaries and the communities are growing more and more conscious of the diversity of interests. Southern California already talks of division and independent statehood. The seeds being sown now will bring forth fruit long before the United States is full grown. The proposition to create a new state of the mountain portions of Kentucky, Tennessee, Virginia and North Carolina has been heard frequently in the past few years. That idea is born of partisan politics, but it is an idea which will grow and which eventually may be acted upon.

Chicago and Philadelphia may also succeed in divorcing themselves from their rural fellow-citizens of Illinois and Pennsylvania. Kansas City, a metropolis in two states, may be the center of a new state carved from Missouri and Kansas territory. These changes, or others of a similar nature, are almost sure to follow the doubling of the present population and the increased inconvenience of local administration in states of the present boundaries. Even now New York state makes separate laws and organizes separate administrative bodies for Manhattan and "up-state."

Long before the end of the century many of the details of federal legislation now in the hands of Congress will be delegated to commissions. The work of Congress is now so great that it overwhelms that body and makes true deliberation impossible. The actual power of legislation will always rest with Congress as long as the Republic endures, but there will be much of the detail work that will be delegated to other bodies. Tendencies in this direction are already being "viewed with alarm," but the movement will not cease because of the fears of the conservatives.

The reserved powers of the states, such as are left, will be guarded with as great jealousy and with more intelligence than they are now. The annual meeting of the House of Governors, in some city other than Washington, will facilitate uniform legislation by the states upon important matters of general interest, and this will have the effect of stopping a general outcry for increased federal powers. The recent meeting of the governors at the White House was the first step in this direction—it is easy and natural for the movement there begun to assume the predicted importance.

The municipal government problem will be solved and the ruin of boss rule avoided by the general adoption of the commission system. It is entirely possible that the idea of cooperation may be so extended that the commissioners who administer local municipal affairs may be united in an organization which will provide a system of checks and balances which will guarantee honest government. The commissioners of New York, for instance, will hail from five other cities. One commissioner is removed to some other city each year, and inspecting supervisors from other cities may come in at any moment. This would be a combination and adaptation of the German municipal system and the old fashioned Methodist itinerary.

Absolute and complete publicity of campaign contributions and expenditures is sure to come within the next decade or two. The federal government and all the states will recognize the fundamental importance of party government, so that all primaries and conventions will be held under the laws of the land. The Congress will unseat a man whose nomination was obtained by fraud as quickly as if he were elected by fraud. The corrupt practises of present-day elections will disappear. This is as certain as the life of the nation, for if corruption is not stopped it will increase, if it increases the nation cannot hope to live.

What was looked upon fifty years ago as "smart politics" and was admired, twenty years ago became "sharp practise" and was frowned at. The same thing today is "corruption" and is roundly denounced. Not long hence it will be "crime" and will be punished with severity. A more acutely sensitive civic conscience is making the old-fashioned methods of politics decidedly unpopular.

The political machine boss will be a thing of the past. There will be great political leaders, and sharp division of opinion. But these leaders will attract their following because of their espousal and advocacy of some principle—not because of their power to dispense pie or shake the plum tree. Education of the masses is already breaking the power of the boss. A new boss who comes up nowadays must come as a wolf in sheep's clothing. He must denounce his trade to obtain a foothold to practise it. Such hypocrites will fail, and the American of the future will read the tales of the boss-ridden cities and States of today with the same curious sensations we experience now in reading of Salem witchcraft.

The surest sign that true reform will come in the future is that it is already coming. Twenty years ago men were prominent in public life who openly did things that would absolutely damn a public man of today. There is no doubt that there are honored public men today who resort to political subterfuges that their successors of twenty years hence will not dare to consider. The world grows and it gets better every day. The "good old days" were generally bad. When the United States comes to its full estate, when there are 385,000,000 Americans in the year 2000, it will be the greatest nation under the sun. But more than great in wealth and power—it will be great in the honesty of its government and the purity of its people.

HASKIN ON 20TH CENTURY

(Advertiser Correspondence, Copyright by Frederic J. Haskin.)

As the world today looks back upon the reign of Elizabeth as the golden age of letters, upon the era of Pericles as the golden age of Greek civilization, so the world of the future will look back upon the twentieth century as the golden age of science. The wonderful inventions and discoveries of the nineteenth century have already changed the whole world, but there is good reason for the faith of scientific men that they were only the seeds scattered from the hand of the sower, the promise of the full fruition to come in this present century.

The scientists of the United States do not lead all the world, it is true, but the Americans are first in the application of science to practical affairs. There was a time when the scientist was a recluse who pursued his painstaking investigations merely for the love of his work. Nowadays the scientist works with a purpose—and that purpose the desire to lighten the burden, increase the usefulness and add to the pleasure of every living man.

Every field of human inquiry is being examined into with the slow, patient, careful and intelligent questioning of the scientist. Every discovery made is instantly applied to some problem of actual life. Time was, and not so long ago, that the world laughed at the bespectacled man who bent for years over his microscope looking at "bugs." The world laughs no longer. That much despised "bugologist" has freed the race from mortal fear of many diseases, he has found the way to prevent devastating blights which destroyed useful plants, he is still tirelessly at work for the good of mankind.

The great problem of the inventor and the scientist of the future will be the utilization of what the people now waste in this country. For instance, it is said that the railroads of the United States use 150,000,000 tons of coal a year in their engines, and that the energy of only 7,500,000 tons of this is utilized, the energy of the other 142,500,000 tons passing uselessly away into the air. Every ton of this wasted coal gives off 65,000 pounds of carbonic acid gas and each pound of it has as much efficiency in it as three pounds of steam. Thus, every year the railroads alone waste power equivalent to twenty-seven trillion pounds of steam. Think of the wonderful benefits the man will confer upon humanity who will find a practical way to utilize only one-half of the wasted energy! If all coal consumption shows a proportionate amount of wasted energy it means that in the United States we annually lose the energy of more than sixty-five trillion pounds of steam. That energy, properly doled out, would be sufficient to meet all the power requirements of the whole world. Some idea of its inconceivable immensity may be gathered from the statement that if every one of the twenty-five million horses in the United States were required to exert their full pulling power, it would take them more than 6500 years, working eight hours out of every day and 300 days out of every year, to perform a like amount of work.

Then there is the waste of water power. The total amount of water power used in 1905 was about a million and a half horsepower. If the streams of the United States from the smallest available mountain brook up to the waterfalls and rapids of the big rivers were harnessed, it would probably show a hundredfold increase over the present capacity, or enough to furnish the power of the whole nation a hundred years hence. By the utilization of the hydro-electric principle the millions of horsepower now going to waste in the mountain fastnesses of the country can be brought out into human habitations and made to bear its burden in a growing civilization. Every community in the land could have its hydro-electric plant just as it now has its blacksmith shop and its grist mill. With his storage batteries the farmer would have a cheap substitute for his horses, having them replenished just as he now goes to the blacksmith shop to have his horses shod. Or, perhaps it will come even closer to him. Today the farmer in advanced rural communities who has no telephone is a rarity. Why not electric transmission plants reaching every farm? There are today interurban railroads which sell their surplus current to farmers within their territory at less than half the cost of horsepower. Is it beyond the hope of a century's progress to see a thing in general use which has already proved its value? As the years come and go, farms will get smaller and men will be forced to consider every item of expense, and to reduce waste to the minimum. Electric power will be one of the things to come as a result of this twentieth century development.

There is even a possibility that wire transmission of power may be succeeded in the future. Wireless telegraphy looked impossible until within a few years ago. Seeing by wire, or telephotography, would seem an idle dream but for the fact that we know it has been accomplished. But beyond this even, we would have regarded the discharging of a torpedo by wireless communication, within a range of seven miles, as impossible. And yet this is a recent accomplishment. Is not that a wonderful first step in the direction of the wireless transmission of power? So that after all, the dream of the farmer replenishing his storage batteries from a wireless current may yet ripen into an actuality. It is even possible that new sources of power may yet be utilized. Who can calculate the force with which the billows break upon our coasts? Someone has invented a turbine which may be anchored in midstream to catch the power of the water as it rushes onward in the universal impulse to find a resting place as near to the center of the earth as possible. May the century not bring forth a similar method of harnessing the waves as they break upon our shores?

For generations man has dreamed of the utilization of the energy of the sun's rays. But it has remained for the twentieth century to take the greatest step in that direction. A solar engine, showing three and a half horse power while the sun shines, has been developed. So successful was the engine that a company has been formed to build one in Florida to be used for commercial purposes. Is it any greater step from this to a general utilization of sun power than it was from the Watt steam engine to one of the modern kind showing ten thousand horse power? Or is it a longer distance to travel than from Fulton's Clermont to the twentieth century Lusitania?

The century will bring forth new methods of preventing fires and of fighting those which do occur. In the past thirty-two years the fire losses of the United States have amounted to two and a half billion dollars. The money values thus wiped out would be enough to furnish 1,250,000 families with $2000 homes. Fireproof buildings will be imperative necessities as building materials become scarcer. In the countries of Europe furniture, even in the homes of the poor, lasts for hundreds of years. Dove-tailing and the like prevent it from ever falling to pieces. Who would think of such things here? It is cheaper to buy a new paper of pins than to pick up those scattered around. It is cheaper to use a half dozen bedsteads that have been glued together than to buy one perfectly made. It has been cheaper to rebuild a house if it happened to burn down than it was to build a good one in the first place. All of this argues wonderful prodigality of resources. By the end of the century necessity will have caused us to evolve a plan of living on the basis of "once well done, twice done."

The new century will revolutionize warfare, and a bold prophet indeed is he who will try to describe the end-of-the-century battle, if perchance brute force is recognized at all in those days. Already the new century, yet in its happy childhood, has given us the noiseless gun. It has given us the promise of airships which will be effective in time of war. Every new year brings forth new inventions to add to the hideousness of the war monster, and each one of them forespeaks such terrible carnage that every human impulse revolts at the thought. Each step of progress in the science of war seems to make the possibilities of war more remote.

The health of humanity will be a matter of general concern in the days that are to come. The span of life will be lengthened. Science will wipe out epidemics. Individual understanding of the laws of health will enable us to avoid a thousand ills. It is not improbable that necessity will force upon us the Chinese way of paying our doctors to keep us well instead of rewarding them for treating us when we are sick. The discovery of dirt has been said to be the hygienic triumph of the nineteenth century. So has the practice of cleanliness been the triumph of the twentieth century. Plenty of sun, plenty of pure water, plenty of pure food and of fresh air for everybody will be the order of the years to come. Trying to keep well rather than to cure disease will be the individual policy of those days.

The application of the discoveries of science to sanitation and hygiene has already resulted in great improvement of the public health. Our grandfathers did not dream of the science of cleanliness as we know it today. The grandsons of the more enlightened Americans of the first century will be better and stronger men in the end of the century. When the United States comes to the year 2000 with 385,000,000 people, it will be the greatest nation of history. Much of the credit for that triumph will be due to the scientist who has made possible the intimate daily communication of the people all over the broad country, who has made knowledge popular and cheap, who is teaching us how to be clean and healthy. The application of science to daily life means that the people of the end of the century will be better men than we are—better physically, better mentally and better morally.

RESCUE HOME OVERCROWDED

(From Thursday's Advertiser.)

Last night there were more children being sheltered in the Salvation Army home, at Pawaa junction, than could be properly provided for in the limited quarters at the disposal of the matron, Staff Captain McAbee. Yesterday three homeless waifs, their mother in the hospital and their father out of work, were brought to the home. There was no room for them, but they were taken in nevertheless and are now being cared for, however inconvenient it has proved to be. Today, if more homeless children are brought in to the home, there will be no questions asked, but the little ones will be cared for some way and never made to feel that they are unwelcome.

In view of the growing prosperity of Hawaii, the swelling dividends, the millions in sight of Federal money to be distributed here and the thousands being spent in anticipation of the coming of the fleet, the fact that the only place in the Territory where homeless and hungry children will be taken in and cared for is unable to do all its founders wish because of lack of funds to provide accommodations is something that should be remedied.

There are thirty children now at the home under twelve years old. There are ten girls in the rescue home at the same place, over twelve years old. The first girl ever placed in the Girls' Industrial School is now at the home, having gone there after her term in the reformatory was up, a few days ago, because there was no other place for her to go where she could live honestly. She is eighteen years old and the institution that has cared for her for many years could keep her no longer. She had to go out into the world without relatives, without a home and with no friends or money.

The Territory has institutions where men and boys who have broken the laws are taken care of, it has institutions where women and girls who have broken the laws are taken care of, but there is no place in the Territory, besides the Salvation Army home, where honest women, girls and boys can go if they must appeal to someone for a shelter. And the only institution holding out a helping hand to homeless children, to women in distress or to girls who have fallen, is so crowded and so poor that it cannot do the work it wants to.

Staff Captain McAbee intends to appeal to the Legislature to help. Her idea is that the Territory might well do as is done in California and other states, where the state appropriates and pays the Salvation Army home so much per diem for each child maintained. If this cannot be done here, she hopes that the Territory will build a home and maintain it, turning it over to the Salvation Army officers to run in the same way that the Kapiolani home here is in charge of the Sisters, and the home at Kalaupapa in charge of the Sisters and Brothers of the Roman Catholic church, the Salvationists to receive no salaries for their work other than that allowed them by their Army.

In the meanwhile, however, it seems necessary that more room and more money for maintenance should be had for the rescue home and the home for destitute children. For this the charitable among the citizens must be appealed to. Anyone interested in the work of the home or of present day conditions there may investigate and if the need appeals to them may help in the only way possible, by subscribing to the funds used for the maintainence of the home and the prosecution of the good work.

INFANTILE CHOLERA.

Any unusual looseness of a child's bowels during the hot weather should be a warning to mothers. Infantile cholera may develop in a few hours, and prompt action should be taken to avoid it. Chamberlain's Colic, Cholera and Diarrhoea Remedy, followed by a dose of castor oil, will check the disease in its insipiency, and all danger may be avoided. For sale by Benson, Smith & Co., Ltd., agents for H. I.

An inventory of the estate of the late Annie L. Roe was filed yesterday. The personal estate is given at $179 besides a judgment against the estate of the late Henry Hogan for $245.72, from which an appeal has been taken.